WHAT IS CLAIMED:

1. A system for sensing a sample, comprising:

a first source configured to emit first optical radiation with a first polarization and that varies at a first frequency;

a second source configured to emit second optical radiation with a second polarization and that varies at a second frequency;

a detector configured to detect the first and second optical radiation after interaction with the sample and generate a detection signal;

a first lock-in amplifier configured to process the detection signal based on the first frequency to produce a first output signal; and

a second lock-in amplifier configured to process the detection signal based on the second frequency to produce a second output signal.

2. The system of claim 1, wherein the first source includes:

a laser configured to emit radiation,

a modulator configured to modulate the radiation at the first frequency, and

a polarizer configured to impart the first polarization to the radiation.

3. The system of claim 1, wherein the second source includes:

a laser configured to emit radiation,

a modulator configured to modulate the radiation at the second frequency, and

a polarizer configured to impart the second polarization to the radiation.

4. The system of claim 1, further comprising:

a third source configured to emit third optical radiation with a third polarization and that varies at a third frequency; and

a third lock-in amplifier configured to process the detection signal based on the third frequency to produce a third output signal.

5. The system of claim 1, further comprising:

a processor configured to process the first output signal and the second output signal to obtain polarization information relating to the sample.

6. The system of claim 5, further comprising:

a reference source configured to emit optical radiation that varies at a reference frequency; and

a reference lock-in amplifier configured to process the detection signal based on the reference frequency to produce a reference output signal,

wherein the processor is configured to divide the first output signal and the second output signal by the reference output signal.

7. A method of remotely sensing a sample, comprising:

transmitting a first beam of optical radiation toward the sample, the first beam having a first polarization and an amplitude varying at a first frequency;

transmitting a second beam of optical radiation toward the sample, the second beam

having a second polarization different from the first polarization and an amplitude varying at a second frequency different from the first frequency;

detecting the first and second beams of optical radiation after interaction with the sample to produce a detection signal;

determining a first portion of the detection signal that is present at the first frequency;

determining a second portion of the detection signal that is present at the second frequency; and

obtaining polarization information about the sample based on the first portion of the detection signal and the second portion of the detection signal.

8. The method of claim 7, further comprising:

generating first optical radiation;

modulating the first optical radiation at the first frequency to obtain modulated radiation; and

polarizing the modulated radiation to obtain the first beam of optical radiation.

9. The method of claim 8, further comprising:

amplifying the modulated radiation before the polarizing.

10. The method of claim 7, wherein the determining a first portion of the detection signal uses a lock-in technique and an first reference signal at the first frequency, and

wherein the determining a second portion of the detection signal uses the lock-in technique and a second reference signal at the second frequency.

11. The method of claim 7, wherein the polarization information about the sample includes optical power from the sample at the first polarization and optical power from the sample at the second polarization.

12. A system for sensing a sample, comprising:

a plurality of sources configured to emit optical radiation, each one of the plurality of sources being configured to emit radiation at a different frequency and a different polarization from other ones of the plurality of sources;

a single detector configured to detect the optical radiation from the plurality of sources after interaction with the sample and generate a detection signal; and

a plurality of lock-in amplifiers corresponding to the plurality of sources and respectively configured to generate components of the detection signal that are present at the different frequencies,

wherein the components of the detection signal correspond to radiation from the sample at the different polarizations.

13. The system of claim 12, wherein the plurality of sources includes at least four sources, and

wherein the plurality of lock-in amplifiers includes at least four corresponding lock-in amplifiers.

14. The system of claim 12, wherein the single detector includes a focal plane

array, and

wherein the components of the detection signal include a plurality of images at the different polarizations.

15. The system of claim 12, further comprising:

a reference source configured to emit unpolarized optical radiation at a reference frequency that is different from the different frequencies of the plurality of sources; and

a reference lock-in amplifier configured to generate a reference component of the detection signal that is present at the reference frequency.

16. The system of claim 15, further comprising:

a processor configured to normalize the components of the detection signal that are present at the different frequencies based on the reference component of the detection signal that is present at the reference frequency.

17. A method of remotely sensing a target, comprising:

generating a first beam of optical radiation that is modulated at a first frequency and polarized at a first polarization;

generating a second beam of optical radiation that is modulated at a second frequency and polarized at a second polarization;

transmitting the first and second beams of optical radiation to the target; and

detecting radiation at the first polarization and radiation at the second polarization from the target using a phase sensitive technique and the first and second frequencies.

18. The method of claim 17, wherein the detecting includes:

converting optical radiation into an electrical detection signal,

performing the phase sensitive technique on the electrical detection signal using the first frequency to detect the radiation at the first polarization, and

performing the phase sensitive technique on the electrical detection signal using the second frequency to detect the radiation at the second polarization.

19. The method of claim 17, wherein the generating a first beam includes:

emitting first optical radiation;

modulating the first optical radiation at the first frequency to obtain modulated radiation; and

polarizing the modulated radiation at the first polarization to obtain the first beam of optical radiation.

20. The method of claim 17, wherein the generating a second beam includes:

emitting second optical radiation;

modulating the second optical radiation at the second frequency to obtain modulated radiation; and

polarizing the modulated radiation at the second polarization to obtain the second beam of optical radiation.

21. A system for remotely sensing a sample, comprising:

means for generating a plurality of differently-polarized signals respectively varying at different frequencies; and

means for detecting optical radiation at the different frequencies using a phase sensitive technique after the optical signal has interacted with the sample.